Center for Innovation
Unmanned Aircraft Systems Consortium (UASC)

A consortium for the research, development, implementation and commercialization of new technologies to improve all aspects of the unmanned aircraft system industry, and the related education and training needed to ensure a competitive workforce.
THE CENTER FOR INNOVATION (CFI)

The Center for Innovation (CFI), a nonprofit LLC, serves as a catalyst for technology based economic development. The Center supports a strategic approach to the formation of collaborative partnerships, facilitating and enabling the integration of industry, academic, and government research and discovery with venture capital and talent & know how. CFI is focused on the commercialization of technology-based research outcomes from universities, industries and U.S. federal labs, leading to the evolutionary development of integrated industry clusters.

The Center is focused on three strategic initiatives:

1. **Deal Flow**: creating world-class deal flow, by fostering technology discovery and access to technology from federal labs, universities, and industry.

2. **Venture Capital**: catalyzing the formation of a strong venture capital industry in our multi-state region, creating access to the nation’s venture capital industry.

3. **Talent & Know How**: developing and attracting talent & know how, by supporting entrepreneurial development, in partnership with our nation’s educational institutions, governmental entities, and the business community, creating the environment that nurtures and sustains an entrepreneurial culture.

The Center’s work is global, national, regional, and local in scope, premised on the concept that our future U.S. economic sustainability is dependent upon fostering collaboration among and between our nation’s federal labs, research oriented universities, technology based economic development entities, and the venture capital industry; resulting in greater affordability, reliability, and efficiency for all parties.

TECHCOMM

In 2010, the Center for Innovation established TechComm at the invitation of the U.S. Department of Defense, as a “multi-agency” Federal Partnership Intermediary. As such, TechComm is responsible to support the formation of strategic “public-private” partnerships, facilitating and enabling the integration of industry, academic, and government research and discovery with venture capital and talent & know how.

We are in the third year of a five year plan to develop a nationwide network of Affiliate Partner Intermediaries that the Center will work with and through in order to seek (1) applicants from business and industry to license federal patented technologies for their use, manufacture, or production; (2) research from both industry and academia that is aligned with the research priorities of our federal partners, for consideration by their federal labs as cooperative research and development projects; and (3) technology discoveries from both academia and industry that can be procured by one of our federal agency partners.

TechComm currently represents five federal agencies, including (1) the U.S. Department of Defense (DoD), (2) the U.S. Department of Agriculture (USDA), (3) the U.S. Department of Homeland Security (DHS), (4) the National Institutes of Health (NIH), and (5) the U.S. Department of Energy. TechComm works with these agencies through their Offices of Technology Transfer and Transition, and the 263 labs they operate. These labs collectively spend $100 billion annually on research, employ 100,000 federal researchers and scientists, with 20,000 patents available for license by business and industry for their own use, manufacture, or production.
The Unmanned Aircraft System Consortium (UASC)

An Industry led Initiative, Implemented Through the Collaboration of Industry, High Technology Companies, Universities, and Government

Introduction

The establishment of DFW Airport in 1973 is generally viewed as one the most significant projects in the history of north Texas, in terms of its impact on the economic growth and viability of the region. It has essentially been the foundation for the emergence of north Texas as a center for the aerospace industry and as a primary logistics and distribution hub, despite the regions lack of access to navigable water.

In the past 40 years, however, the aerospace industry has changed, with the emergence of unmanned and autonomous systems, along with the need to develop the technologies to integrate them with a variety of payloads to meet a rapidly growing demand from both the federal government and first responder community.

Today, Texas competes in a globally competitive yet integrated, knowledge-based and innovation-driven economy. Therefore, to remain competitive, we have to re-position our state and region, particularly in the aerospace industry, in partnership with other emergent regions, nationally and globally, to focus on research and innovation in the field of unmanned and autonomous systems. This will result in our leadership in new commercializable discoveries in the emerging unmanned aircraft system industry.

In our view, doing so will require two things:

(1) New models, that can enable our state and region to emerge as leaders in the unmanned aircraft system industry, by enabling and supporting collaboration among existing entities, rather than the creation of new organizations often perceived as competition; and (2) new ways of thinking, in support of those collaborations, while extending those collaborations into other regions, nationally and globally, that have similar abilities and ambitions.

The Unmanned Aircraft System Consortium (UASC) has been established by the Center for Innovation (CFI) as a catalyst to bring together the aviation industry with universities, economic development, and government entities, with the support of three primary federal agencies represented by CFI: the U.S. Department of Defense; the U.S. Department of Agriculture; and the U.S. Department of Homeland Security, supported by the Federal Aviation Administration.

The Consortium it is focused on enabling collaboration on five primary strategic objectives:

1. Research, development, and commercialization;
2. Industry sector development;
3. Access to Capital
4. Education, workforce development, and training; and
5. Policy and standards development
Consortium Concept
The Center for Innovation (CFI) has established the Unmanned Aircraft System Consortium (UASC) as a means to respond to the rapidly emerging demand for Unmanned Aircraft and Unmanned Vehicle Systems, particularly in terms of meeting the needs of three of the federal agencies CFI represents as a federal partnership intermediary: the U.S. Department of Defense; the U.S. Department of Homeland Security, and the U.S. Department of Agriculture.

EXPECTED OUTCOMES
A major objective of the Consortium is to foster cooperative relationships between the Center for Innovation member institutions and the federal agencies the Center represents, as a catalyst for the emergence and growth of the UAS industry, to address the demand being created by the Agencies.

Important metrics to assess the Consortium’s effectiveness include (1) the number of federal patents licensed; (2) number of Cooperative Research and Development Agreements established; (3) number of member invention disclosures and patents filed; (4) publications & conference presentations; (5) amount of funded research projects secured; (6) the development of training curriculum and training capacity; and (7) number of graduates trained and employed in key support industries.

UAS CONSORTIUM STRATEGIC OBJECTIVES
The Center has established five strategic objectives for the UAS consortium, each guided by a Technical Guidance Committee comprised of Consortium members:

1. Research, Development & Commercialization:
   A research component has been established, offering both university and industry sector partners the opportunity to work with and through the 263 federal laboratories CFI represents to expedite the transition of federal UAS/UAV technologies from the federal agencies into the commercial sector. This will also support industries’ capabilities to develop and increase the manufacturing of UAS, providing assistance with the production and manufacturing of UAS.

   Specifically, the Consortium will:
   - Seek federal partners for research and product development to support the technology needs of the UAS industry, through Cooperative Research & Development Agreements (CRADAs);
   - Enable efforts to commercialize new technologies;
   - Expedite the transition of technologies from federal agencies/labs into the commercial sector through Patent License Agreements (PLAs), as well as technologies from the private and academic sectors;
   - Validate prototype designs

2. Industry Sector Development:
   The Consortium will develop access to testing facilities for government, academic, and corporate research, and enable consortium members to test and evaluate research ideas by helping them gain access to testing facilities.

   Specifically, the Consortium will:
   - Provide support for prototype development;
   - Provide access to testing facilities and airspace for government, academic, and corporate research;
   - Serve as a catalyst to develop the manufacturing capacity needed to meet emerging markets demand.
   - Serve as a catalyst to develop the prototype supply chain necessary for the growth of the industry.
3. **Access to Capital**
   The Consortium will determine the capital needs of the industry, and work to establish access to the various types and sources of capital necessary to support the growth of all industry sectors, to include (1) **venture investors**, inclusive of Angels, Angel funds, Pre-Seed, Seed stage and later stage funds; (2) **debt equity capital**; (3) **state and federal grant** funds; and (4) **SBIR/STTR** funding.

   Specifically, the Consortium will:
   - Establish access to venture capital
   - Establish access to debt equity capital
   - Establish access to state and federal funding

4. **Education, Workforce Development & Training**:  
   From a workforce perspective, the Consortium will support the development of the workforce needed for the job growth that is projected by the Association of Unmanned Vehicle Systems International (AUVSI) driven by the Congressional mandate to the FAA to integrate Unmanned Aircraft Systems (UAS) into the National Airspace System (NAS) by 2015, as well as DoD’s plan to double defense spending on UAS over the next 8 years. More than 23,000 jobs are expected to be created in the next three years. The Consortium will work with a broad range of industry partners, primarily those that will directly create these high paying positions, to understand the skills needed; the Consortium will also engage the Public Workforce System at federal, state and local levels to ensure the alignment of training resources.

   From a training perspective, the Consortium will work with public universities, community colleges, independent school districts, and other educational institutions who are invested in aerospace and aviation related research and development (R&D) to develop the curriculum and instructional delivery methods necessary to provide the training needed for UAS aerospace related jobs.

   Specifically, the Consortium will:
   - Identify the emergent jobs and related skill sets needed
   - Develop the curriculum necessary to support workforce development for certificate, 2 year, and 4 year degree programs
   - Develop the training capacity and capability necessary to train the needed workforce

5. **Policy & Standards Development**:  
   As the Unmanned Systems industry emerges, both standards and public policy that regulate the industry will be formulated and promulgated by federal, state, and local governments. From that perspective, the Consortium will work with and through our members to provide direct input to the formation of policy and standards.

   Specifically, the Consortium will:
   - Actively seek and propose solutions for the safe and effective operation of manned and unmanned aircraft systems, including standards development.
   - Provide recommendations to policy makers for public policy and standards development
   - Establish a Policy Research Center & Clearinghouse for research to develop safety standards and requirements
   - Align the work of the Consortium with the federal governments work to define policy & standards for the UAS industry.
Consortium Operations & Governance

PURPOSE
The purpose of the Consortium is to create a nationally recognized, investor based consortium of industries, local governments and universities to serve as a catalyst for the emergence of the Unmanned Aircraft System Industry. The Consortium will focus on 3 over-arching priorities:

(1) the development, implementation, and commercialization of new technologies to develop, and expand the unmanned aircraft system industry;

(2) to improve efficiency, energy and environmental sustainability, safety, security, logistics, training, technologies, and the like, all of which directly affect the competitiveness and profitability of the industry; and

(3) to educate and train the next generation of skilled workers in key technology areas required by sector industries to support the UAS industry.

GUIDING PRINCIPLES
The Consortium is designed to help speed the movement of new ideas, technology solutions, and products to commercialization. Key to success is engaging businesses, universities, and government to support applied research that focuses on finding solutions to common UAS industry problems.

ADVISORY BOARD
The Consortium is an investor based organization, operated as an affiliate of the Center for Innovation, with investors providing guidance through an Advisory Board that oversees operations in accordance with the consortium’s mission. The initial Advisory Board was comprised of the founding members, as of June 18, 2012. As the Consortium expands, the Advisory Board will expand to reflect new investor stakeholders and their level of support. The Center for Innovation provides the staff support to implement and coordinate both internal and external operations of the Consortium.

EXECUTIVE COMMITTEE
The Consortium has established an Executive Committee that provides direct oversight to the operations of the Consortium, while developing and proposing strategic goals and objectives.

TECHNICAL GUIDANCE COMMITTEES
The Consortium has established Technical Guidance Committees (TGC) that address critical needs areas of Consortium members. The TGCs are the working committees of the consortium. The TGCs guide the focus of collaborative activities and identify specific research and development needs for the industry cluster. They also disseminate and evaluate requests for proposals for UAS research and funding. Each project selected by the TGCs is managed by an assignee from one of the Consortium stakeholders.
The Consortium is organized under the auspices of the **Center for Innovation (CFI)**, a nonprofit LLC. The Consortium is supported by **TechComm**, a CFI affiliate that serves as a Federal Partnership Intermediary representing 5 U.S. federal agencies and the 263 labs they operate. The Consortium is also supported by **VenComm**, the Center’s for-profit affiliate, to establish new business ventures, fund research, or seek funding for commercialization.

The Consortium is sustained by the Center for Innovation’s **Affiliate Partner Network**, supplemented by leveraging federal and state research and development and related funding. The Consortium seeks three-year commitments from participating investors.

**INTELLECTUAL PROPERTY**

The Consortium is committed to identify and/or develop new technologies and solutions that can be translated to enhance the business operations of its investors. The guidelines for patent, copyright, technical data and software policies that apply to the Consortium shall be based on principles that best accommodate the goals of the Consortium investors.

Ownership of intellectual property shall be in accordance with U.S. Patent law. For Consortium funded and/or managed research, participating investors will be required to submit all planned publications, research reports, and invention disclosures derived from that supported research to the Consortium for a 90-day prior review by all Consortium investors. This review will allow each investor the option of negotiating an exclusive or non-exclusive license for any IP generated from these the Consortium funded or managed projects, and/or negotiating sponsored research agreements (SRAs) directly with the institution(s) performing the research to continue and expand the specific research agenda.

Consortium investors will have the option to negotiate Sponsored Research Agreements separately and directly between and/or with other consortium investors. This research is not Consortium funded or managed research. Intellectual property rights would then be governed by the policies at the performing institution(s).

Consortium investors receive assistance from CFI to both license federal patents and/or establish Cooperative Research & Development Agreements with and through the 262 federal labs CFI represents. Further provisions will be described for handling Non-Disclosure Agreements, rights to publish, indemnification, and liability.

**ACCOUNTING, RESEARCH AGREEMENTS AND FLOW OF FUNDING**

All annual investments, project commitments and contributions will be payable to the Center for Innovation when an investor first joins. Subsequent commitments for future years will be payable on the anniversary date when the Investor joined. All Consortium funded or managed research projects (SRPs) will be contracted between the Consortium and investors. Sponsored research agreements (SRAs) will be made directly between corporate/industry/university investor sponsors and/or the performing institutional sponsors.

The CFI Staff, on behalf of the Technical Guidance Committees, will execute Consortium funded/sponsored/managed grant agreements for proposals selected for awards.

Master NDA terms will follow industry standards.

A **pro forma** financial plan for specifics on income, operational expenses, and capital expenditures for the first three years of operation will be provided once the membership fees have been established and an estimate of the number of members is made.
Notification of Proprietary Information
The information furnished in this report is proprietary to the Center for Innovation at Arlington and, therefore, is privileged and confidential. It shall not be disclosed outside the Government for any reason (including Freedom of Information Act requests), without the prior written approval of The Center for Innovation, or duplicated, used, or disclosed, in whole or in part, for any other purpose than to evaluate the proposal, provided that if a contract, a Patent License Agreement, or Cooperative Research & Development Agreement secured, as a result, or in connection with the review, evaluation, or submission of any such information, the Government agencies represented by TechComm shall have the right to see, or to disclose this information to the extent provided in the contract. This restriction does not limit the Government’s right to use data contained in such information if obtained from any other source without restrictions.